Frankly Speaking

Traffic and Planning

In the course of the recent AASHO meeting in Los Angeles which is discussed on page 215, this issue, there was sensed, at times, a feeling of competitive relationship between traffic control operations and planning work; or getting down to two personalities, the Traffic Engineer and the Planning Engineer. Such a trend is certainly not one to be nurtured and is not at the moment a condition of any alarming proportion. However, it is not remiss for those concerned to pattern their efforts and behavior in a manner which will forestall any possibility of a wide cleavage.

Such tendency as there has been towards a competitive attitude could probably be traced in large part to "nerves." In the chaotic conditions of returning to a peace-time economy, the Traffic Engineer, operating as such, is striving to catch up on a backlog of deferred work aggravated by a deluge of current problems in the treatment of which he finds himself hamstrung by personnel shortages and lack of equipment. The Planning Engineer is probably in a comparable situation and state of mind with respect to his activites.

The voicing of sincere and honest opinions is to be encouraged but in the heat of professional intercourse it behooves us to "count ten" now and then to be certain that we couch our utterances in a manner which will not, by direct implication or inference, raise doubt as to the compatability of the Traffic Engineer and the Planning Engineer.

F. B. Rundall

Member, Board of Direction

Timing Progressive Signal Systems

by JACK L. PETTERMAN, *Assistant Signal Engineer*
Traffic Engineering Bureau, City of Detroit

PART I

Ed. Note: This article is broken into two parts. The second part will appear in next month's issue.

MANY people in the traffic engineering field occasionally find the need to develop progressive signal timing along a street, and yet do not have enough experience in this particular phase of the work to be able to proceed without recourse to handbooks or other publications. They study the procedures and analyze the examples given, and then feel that they are about ready to start on their own problem. A short session at the drawing board soon convinces them that they didn't really learn as much as they thought they had, so back they go to the handbook. This time disturbing questions arise as they review the example, and it seems that in most cases the answers are not apparent.

It is hoped that the following description can be regarded as a practical method of timing progressive signal systems and that a thorough study of the methods will leave no questions unanswered.

A general discussion will first be given, and then an example will be thoroughly investigated.

The basic factors involved in the development of progressive signal timing in a system are (1) the distances between signals, (2) the speed of the vehicle, (3) the cycle length for the system, and (4) the cycle split at each signalized intersection.

Distance Between Signals

In any system there is only one factor that is fixed, and that is the distance between the signals. Of course, the distances will change if new signals are added or old ones removed, but for a given system, they will always remain constant. The distances are always measured in feet, and in the development, the signal locations are usually plotted in this manner. The distances are generally measured from the center of one signalized intersection to the center of the next signalized intersection. The width of the cross street is usually not taken into consideration unless the time to cross it is considerable with respect to the total length of the green period for the main street.

Speed

The speed at which a "platoon" of vehicles can move without interruption between signals is usually regarded as one of the more flexible factors. This is probably an ideal way of looking at the problem. Practically the speed must be regarded as fixed and this fact kept in mind during the development. In other words, to have progressive timing, the signals must be set for the speed at which most of the vehicles are traveling; you can't force vehicles to travel at an abnormal rate of speed no matter how pleasing a space-time chart it makes. This may prove embarrassing at times, especially when the observed speed is greater than the legal speed limit. Then is

FIG. 1
A "platoon" of vehicles moving through the signal system on Gratiot Avenue in Detroit.

when one of the several important decisions must be made. Whether to set the signals for a speed in excess of the legal limit, or time them for a slower speed and be satisfied that perhaps some of the careful drivers are getting through.

The thought probably occurs, that one way to get out of the situation would be to change the speed limit. One thing wrong with this method is that it is easier to talk about it than to do it; for another thing it may not be desirable to do so. For example, in a 25 MPH zone the progressive speed may have been determined to be 26 or 27 MPH. Changing the speed limit to 30 MPH will result in an overall increase in speed and the observed speed will be greater than the progressive speed. It might be well to mention here that the observed speed, under normal conditions, is usually slightly greater than the legal speed limit. So, the effect would be to try to force drivers to drive at an unnatural speed.

It has been implied above that a choice may be made between a faster or a slower progressive speed. In most cases this choice cannot be made because the speeds may be excessively higher or lower than the observed speed and so could not be used. Therefore, we may have to make the best of a poor choice and let it go at that. The net result is that we are trying to force the drivers to drive at some speed other than that which is most natural. This is in direct contradiction to a previous statement that drivers can't be forced to change their natural speed. Unfortunately, this condition is still true, the result being that the progression set up will not be the best, but the best possible.

This is when the experience of the engineer and the common sense understanding of the habits of the driving public enter into the picture. Since the progression cannot be made perfect, the signal offsets must be shifted and manipulated so that the progressive speed can be made to fit as close

as possible to the observed speed and still pass as many cars as possible through the system without stopping.

In the preceding discussion reference was frequently made to the observed or natural speed of the drivers. The observed speed used in the example, and in all the other systems timed in the City of Detroit, is determined by the "floating car" method (a description of which can be found on page 73 in the Traffic Engineering Handbook).

The speed will be found to be practically constant for those parts of a system where the character of the neighborhood is the same. The speed will usually be found to drop somewhat when passing through a business district, and also when approaching an intersection where the cross traffic is very heavy, even though the intersection may be signalized.

The normal speed along a street may also vary with the density of traffic, that is, the normal speed will usually be slower during rush periods than during the off-peak periods. If it is desired to set up progression for one period or the other, then obviously the speed for that particular period is the one that must be observed.

Cycle Length

Having determined the progressive speed, the next factor to be investigated is the cycle length for the system.

In many cases signalized intersections in the system being investigated are also common to other systems which have already been set up and are in operation. Obviously, all signals must have the same cycle length if there is to be a progressive system, hence the cycle length of a new system may be determined by existing cross street systems.

Sometimes there is only one cycle length that will give a satisfactory progression speed. In this case the cycle length is also fixed. Of course, the cycle must always be long enough

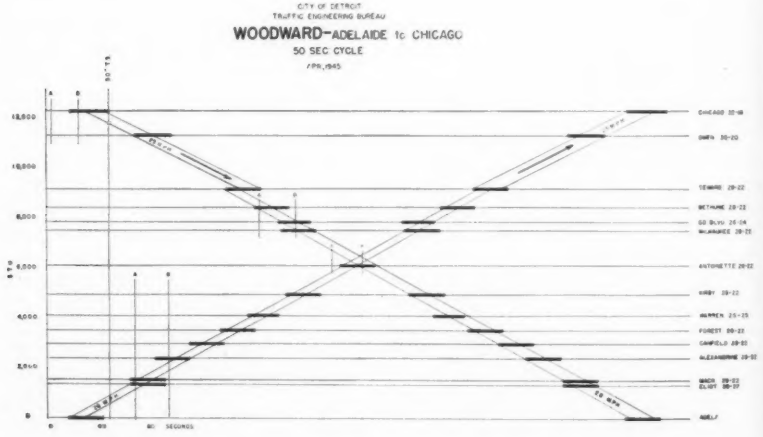


FIG. 2

A time-space diagram designed to allow a platoon of traffic to move continuously at about 25 m.p.h. The black bars are the green periods.

to handle the vehicular volumes entering the intersections and to give the pedestrians enough time to cross the streets. This will be discussed more fully later.

Cycle Split

Probably the most difficult factor to determine is the cycle split at each intersection, that is, the length of the green period on the main street and on the cross-street.

The logical conclusion is that lengths of the greens should be in proportion to the volumes (entering the intersection) on the two streets. This is true enough provided the correct volumes are used. When the streets are of equal width, then the split should be proportional to the entering volume. If the widths are unequal, then it is the lane densities that must be considered.

Since we are concerned with the volume of vehicles at the intersection, it is the number of lanes at the intersection that is important. These are reduced if there is a street-car line on the street and if there is a safety zone present. Practically, only the lanes to the right of the safety zone can be regarded as fully used lanes. While many drivers do use the street-car lane, during the rush period this is pretty well taken up by the street-cars.

If the controllers in the system are such that only one set of offsets can be used, that is, the relationship between green periods for all the intersections is fixed for the entire day, then obviously the cycle must be proportioned so that the peak periods on both streets can be taken care of. In most cases the two peaks will occur at different times during the day.

For signal timing determination, a peak period is usually regarded by this bureau as that 15-minute period during which the lane density is a maximum. For a simple intersection there may be four peak periods, of which only two, the heaviest for the main street and the heaviest for the cross street will be used in determining the cycle split.

In determining the length of green for one direction required at an intersection, it is assumed that the vehicles are arriving at the intersection at a constant rate during the peak 15 minutes. Let it be assumed for the purpose of illustration that a cycle of 60 seconds will be required for the system. Then, during a 15-minute period there will be 15 complete cycle changes, and for an average peak flow per lane of volume V(peak), the number of vehicles arriving at the intersection per cycle will then be $\frac{V(peak)}{15}$. If V(peak) is assumed to be 150 vehicles, then

$$\frac{V(peak)}{15} = \frac{150}{15} = 10 \text{ vehicles per}$$

lane per cycle. Or, in other words, the green must be of sufficient duration to clear consecutively 10 vehicles through the intersection.

Vehicle Headways

It has been found from previous studies in Detroit that under the worst possible conditions at the intersection, that is with all cars stopped, it will take the first car about 4 seconds after the green appears to get into the intersection. All succeeding vehicles will enter at about a 2-second headway. Allowing these clearance or headway times, and continuing with the illustration: the 10 vehicles will require $9 \times 2 + 4 = 22$ seconds of green under the worst possible condition to clear through the intersection. Once a vehicle has entered the intersection it has the right of way over any other vehicle approaching the intersection and may, from the signal timing standpoint, be regarded as having cleared the intersection.

By the same method the minimum length of the green period for the

cross-street is also determined. The sum of the duration of the 2 green periods will then give an idea of the length of the cycle that will be required. If, in the illustration, the cross-street green required was 30 seconds, then the cycle is 8 seconds longer than is required. If a similar examination of all the intersections reveals that in no case is a 60-second cycle required, then the same procedure must be gone through again with a shorter cycle until the shortest cycle that can be used has been determined. It is obvious that the intersection requiring the most time is the one which determines what the cycle length should be. Since all the signals in a system must have the same cycle length, and since the vehicular volume along a street is fairly constant, it is usually sufficient to investigate the conditions at the intersection where the cross-traffic is the heaviest in order to determine what the cycle length should be.

If the cycle length is already fixed by interconnection with another system, or because only a certain one will give the desired progression speed, then the method described above is used to determine the minimum main street and cross-street green periods for each intersection, using the required cycle. The excess part of the cycle can either be divided equally between the two streets, or any other division made which may improve the progression.

Many times the cross-street traffic is so small that a very short green is all that is required. In such instances it must be made sure that the green is at least long enough to permit pedestrians to cross the main street safely. The average pedestrian travels about 4 feet per second under normal conditions.

Amber

Many formulae have been derived for the determination of the amber or clearance interval, but practical experience seems to provide the best lengths. The amber period should be long enough so that a vehicle traveling at a normal rate of speed can either clear the intersection, or stop

SMALL STREET LAMP NOW AVAILABLE

A new compact 2500-lumen street series lamp with a 5⅜ inch light center and a smaller diameter than any formerly available has been announced by the G-E Lamp Department.

The new lamp has the same dimensions as the PS-25 bulb street lamps of 1000 lumens and smaller and was designed to serve three main purposes:

1. Assist municipal and electric utility program of street lighting standardization.
2. Permit the development of smaller and less expensive luminaires which are more effective than those previously available for local traffic residential streets where most low-lumen lamps are used.
3. Facilitate and encourage use of 2500-lumen lamps in place of 1000-lumen and smaller lamps.

Over half of all the street lamps in the country are of 1000 lumens and below in spite of the Illuminating Engineering Society's statement that the 2500-lumen lamp is the smallest size which may be used with good economy. The new PS-25 series lamp will allow replacement of such low-lumen lamps without change in existing luminaires.

Where standardization is concerned only one design will be needed for all open reflector luminaires. Most utilities use open reflector type luminaires with lamps of 2500 lumens and below and up to now these units have been of two designs—one for the 2500-lumen PS-35 lamps and the other for the low-lumen PS-25 lamps.

The new lamp is available for 6.6 and 7.5 ampere circuits and for street series and group replacement service having 2000 and 3000 hours life ratings respectively.

before the cross-street gets the green. For urban speeds the braking distance is about 50 feet. Assuming an average cross-street width of 50 ft. and a speed of 25 m.p.h. or 36.6 ft. per sec., the clearance period should be about 3 seconds (time to cover 100 feet). The value used at most of the signalized intersections in the City of Detroit is 3½ seconds. Occasionally a slightly longer period is used if the cross-street is very wide.

It is probably as dangerous to make the amber period too long as it is to make it too short. Most drivers waiting on the red period at an intersection shift gears when the amber comes on for the cross-street, and begin to creep into the intersection. If the amber is excessively long the motorist may find himself well out into the intersection before he is given the green light, and the possibility of an accident is very great. It is interesting to note that as soon as one driver starts creeping, all those behind him and those across the street going in the opposite direction begin to do the same thing.

In Part II, to appear in next month's issue, these principles will be applied to an actual timing problem in Detroit, the progressive signal system on Woodward Avenue.

Through-Traffic and Trip Purposes in North Carolina

by JAMES S. BURCH, *Member, I.T.E.*
Engineer of Statistics and Planning, North Carolina State Highway Commission

For several years, it has been generally understood and believed that the percentage of through traffic at a city was approximately in inverse proportion to city population. This was indicated in early external origin-destination traffic surveys, and was to be expected. Everyone knew that practically all external trips proceeded through the little "one store" highway town, and that very few trips proceeded through such places as New York or Chicago. The justification for by-passes was the main reason for raising the question.

Over the period of the past two years, we have completed such surveys at seven North Carolina cities, all of them of small or moderate size. These surveys involved some 180,000 individual driver interviews, at or near the city limits of the cities being covered.

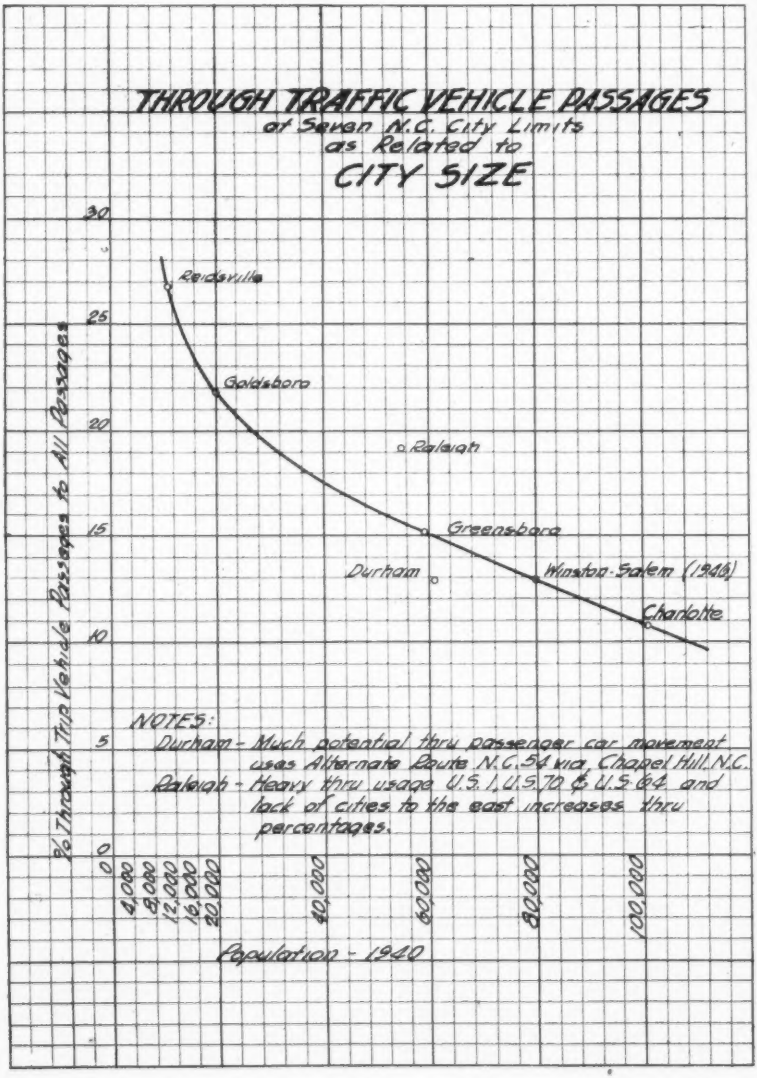
The accompanying curve illustration shows the general relationship of city size to the percentage of vehicles at city limits engaged in through trips. For example, at Winston-Salem some 13 of every 100 vehicles crossing the city limits (all road entrances combined) were going or coming through the city without a necessary or important stop in the city. It will be noted that the selected curve passes through five of the seven city points. Incidentally, the curve was prepared some weeks before the Winston-Salem data was available.

Factors Affecting Thru-Traffic

Of course, there are factors other than population affecting proportion of through traffic. A nearby large town should increase the percentage. An existing alternate or rural by-pass route nearby would lower the percentage. The existence or two or more

important through routes passing through the city (especially the small city) would serve to increase the percentage. A city located adjacent to a large river, or a coastal city, would probably have a lower percentage. With such exceptions, however, the curve is considered as reliable as an approximate indicator.

The reader is cautioned to use the



PURPOSE OF TRIPS
(Driver Interviews at Two Cities' Limits)

North Carolina

	Winston-Salem April		High Point June		Avg.	Est. Year
	No.	%	No.	%	%	%
Passenger Cars — To or From Work, Business, Dentist, Doctor, School, Shopping, to serve another passenger, etc.	18,624	59.92	15,857	57.3	58.6	60
Misc. necessary home to	80	0.26	8			
Trucks and Buses	5,925	19.06	5,708	20.6	19.9	20
Total Necessary Use		79.24		77.9	78.5	80
Passenger Cars — Social, Recreational, Visit, Eat Meal, etc.	6,454	20.76	6,119	22.1		
Total Pleasure		20.76		22.1	21.5	20
Grand Total	31,083	100.0	27,692	100.0	100.0	100

(Data obtained in connection with questions on Trip Origin and Destination, for Route and Trip Pattern Studies.)

percentages with precise phraseology. The data is on "through trip vehicle crossings" of city limits, and not on the number of "through trips." Each through trip involves *two* city limit crossings.

Traffic Trip Purposes

Contrary to the popular belief, North Carolina highway use is not primarily for pleasure purposes, but about 80% of it is related to work, business, schools, transport and the necessary functions of our every day economy.

The composite Summary Table shows the result of 31,083 driver interviews on highways at Winston-Salem's city limits in April, 1946; and 27,692 driver interviews at the High Point city limits in June of 1946. Both periods were long after the end of gasoline rationing, at a time when money was plentiful and there was no restraint on travel.

The large volume of interviews, combined with the similarity of the percentages, indicate the reliable nature of the data. It is further supported by similar observations in other States. It will be noted that, only about 20% of the vehicles—on an annual basis—are engaged in pleasure trips, or in non-necessary use.

To take part in making these driver interviews is to obtain a more complete appreciation and understanding of the extent to which our people are dependent on the car and truck in our modern way of life.

Driver Reaction Time

by HARRY NEAL, *Member, I.T.E.*
Chief Engineer, Ohio State Highway Dept. Division of Traffic and Safety

The reaction time of automobile drivers—the time it takes after seeing a hazard to apply the brakes—increases with age and men drivers have quicker reaction, on the average, than women drivers, according to driver reaction-time tests of more than 1,000 persons conducted by the Division of Traffic and Safety of the State Highway Department at the 1946 Ohio State Fair.

In the tests the reaction time for the age group 20 to 29 years averaged six-tenths of a second in contrast to an average of two-thirds of a second for persons over 60 years of age, an increase of 13 per cent.

The average reaction time for men was 57 hundredths of a second compared with 62 hundredths of a second for women.

The average reaction time of all persons tested was 58 hundredths of a second or slightly more than one-half second. This is somewhat lower than the average reaction-time of three-fourths of a second computed for individuals driving under actual road conditions when the driver has many things to hold his attention. In the State Fair tests persons were anticipating the signal stimulus to stop.

The primary purpose of the tests was educational—to illustrate the significance of reaction time in stopping distances of automobiles at various rates of speed. Few persons realize the long distance a car travels in the interval before the brakes are applied. For example, a car traveling 60 miles an hour and driven by a person with an average reaction time of three-fourths of a second will travel 66 feet before the driver can even apply brake pressure. Then, with good brakes and a dry pavement, the car will go approximately 301 additional feet. Thus the total stopping distance—reaction time plus braking distance—will approximate 367 feet or 123 1/3 yards; a distance greater than the entire length of a football field. —*Highway Research Abstracts, October, 1946.*

REACTION TIME BY AGE AND SEX

Time Values Shown in Hundredths of a Second

AGE GROUP IN YEARS	AVERAGE REACTION TIME (Median)		
	MALES	FEMALES	AVERAGE (Both Sexes)
under 20	0.56	0.63	0.58
20 - 29	0.55	0.60	0.56
30 - 39	0.56	0.63	0.58
40 - 49	0.58	0.64	0.60
50 - 59	0.59	0.64	0.61
60 and over	0.63	0.69	0.63
ALL AGES	0.57	0.62	0.58

COMMUNITIES OF NEW YORK REGION REPORT PROGRESS IN SHOPPER-PARKER PROBLEM

Optimism marked the discussions of Solutions to the Parking Problem at the 1946 Conference of the New York Regional Plan Association. City officials of four communities of the New York Metropolitan Area, White Plains, N. Y., Garden City, N. Y., Madison Borough, N. J., and Hempstead, N. Y., described successful measures used to solve the parking problem in shopping and business centers. The Panel discussion was attended by representatives of the 22 counties of the three states comprising the New York Region, and the program brought out several different methods of financing and operating off-street lots in the communities represented.

Garden City, Long Island

Franklin S. Koons, Chairman of the Garden City Planning Board, traced the development of plans giving "adequate space for present needs and provision for future expansion." In 1931 the Village Board passed an amendment to permit municipal operation and the issuance of a $1.00 parking license to discourage use of free lot spaces by non-residents. Metal tags are attached to license plates to signify payment of the license fee.

Plans were drawn to set aside a 125 foot strip behind the business frontage. By 1936 title had been taken to 8½ acres of this land, assessed at $93,000. The total cost including the development of lots, was $143,000. A benefit area was determined. Assessments to business property could be paid in 10 yearly installments. Lots are cinderized and have landscaped islands.

White Plains, N. Y.

Silas S. Clark, Mayor of White Plains City, N. Y., outlined plans for acquiring lot space in many smaller areas throughout the business section.

The lots planned will be paved and equipped with parking meters so that a two-hour limit can be more easily enforced. A parking authority is handling financing and administration. The project is expected to pay for itself in 20 years.

Madison Borough, N. J.

Norman J. Griffiths, Mayor of Madison Borough, N. J. explained that ground behind stores along one side of the main street had been obtained. A pedestrian underpass will connect the lot with stores on opposite side of street. Parking in lots will be free.

Hempstead Village, N. Y.

Herbert Mirchel, Mayor of Hempstead Village, N. Y. described Hempstead's approach to the business area parking problem. Large block-layout permits a policy of a limited number of large lots. The first now in operation has capacity of 640 cars.

Condemnation, as in Garden City, was the method of land acquisition. Benefited property was assessed for full cost of land. The village pays for maintenance and parking is free. The present daily turnover is 5,000 cars. Plans are being drawn to determine costs of converting to a double-deck structure in provision for an expected increase in demand.

Discussion following the presentation of the methods used in the four cities showed that cities throughout the region were preparing to undertake similar programs to provide more shopper parking space in the business areas of their towns.

Detroit Reports on Parking Requirements

by J. A. CARROTHERS, *Associate Editor*
Traffic Engineer, National Conservation Bureau

Results of a comprehensive survey of parking requirements in the central business district of Detroit, Michigan were recently released by the Detroit Traffic Engineering Bureau, in a report entitled, "Detroit's Parking Needs." The report was designed to answer the questions: (1) Where are the shortages of parking spaces, in the central business district?, and (2) How many additional parking spaces are needed?

The survey showed that 74,600 vehicles entered the C.B.D. during a 12-hour period on October 26, 1944, with 35% driving through the district. 48,500 vehicles were parked one or more times in a total of 25,000 spaces in lots and garages and 4,400 spaces at the curb. The driver of each parked car was interviewed.

Parking Shortage Measured

The analysis of the survey data emphasized the exact measurement of the scarcity of space in the core of the downtown area. Separate analysis of the 19,500 cars which were parked in the downtown area at 1:30 P.M., the time of peak demand, permitted the Traffic Engineering Bureau to desig-

A Detroit Parking Lot on the edge of the "shortage" area. The Survey disclosed a shortage of 2,940 spaces in the area at 1:30 P.M. on day of survey.

The Traffic Engineer's Check List of Prismo Bulletins

√ BULLETIN 746—"PRISMO FOR INCREASED TRAFFIC SAFETY"

A bulletin designed for the city traffic engineer who desires versatile reflective markings with the greatest economy. Write for Bulletin 746.

√ BULLETIN 461—"PRISMO—THE SPHERE OF SAFETY"

This bulletin describes graphically the use of Prismo for centerlines, pavement markings, signs, markers and sundry specialty lines. Prismo Sphere Dispensing Equipment is illustrated as well as laboratory procedures at the Prismo Laboratories. Write for Bulletin 461.

√ BULLETIN 443—"PRINCIPLES OF REFLECTORIZATION"

A treatise on the principles of reflectorization developed and technically presented by the Prismo Laboratories. Ask for Bulletin 443.

√ BULLETIN 244—"IT'S EASY"

The Prismo Sign Kit permits easy, economical reflectorization of signs both embossed and flat. Spraying reflectorizing materials on existing signs is outlined in Bulletin 244.

√ BULLETIN 466—"VERTICAL SURFACE APPLICATION OF THE PRISMO SIGN KIT"

The newest development in Prismo research is the reflectorization of vertical surfaces including signs in place. Equipment is described as well as the simple process—all with surprisingly low cost. Specify Technical Bulletin 466.

√ BULLETIN 462—"PRISMO SIGNS AND SIGN MATERIALS"

This bulletin is an exposition of field and laboratory proved facts concerning Prismo Signs, the Prismo Sign Kit and the Prismo Sign Finishing procedures. If you're interested in greater overall visibility at amazingly low cost, ask for Technical Bulletin 462.

THE PRISMO SAFETY CORPORATION

HUNTINGDON · · · · · · · PENNSYLVANIA

nate a "shortage area." The process of determining the shortage area involved a block by block comparison of the vehicles parked in the blocks with the destinations in the blocks at 1:30 P.M. The shortage area was found to consist of 58 blocks. Assuming 3 blocks as the maximum walking distance, computations were made to show a shortage of 2,940 spaces on the day of the survey. With 2 blocks assumed as the maximum walking distance, the shortage of spaces was found to be 4,700.

It was estimated that by 1960 the shortage in spaces would be 6,900, based on the 3-block walking distance and 8,600 based on the 2-block walking distance. These predictions were based on a 35% increase in traffic volume by 1950 and on othr changes in parking conditions.

Pittsburg Plans 20 New Parking Garages

by DONALD MCNEIL, *Member I.T.E.*
Traffic Engineer, Pittsburgh, Pa.

Pittsburgh has taken the all-important first step toward solving her parking problem—that of determining present and future parking needs. The study of needs is accompanied by a recommendation for a long-range, self-liquidating program to provide nearly 26,000 permanent car spaces, chiefly in garages, to serve and preserve the Golden Triangle.

After 18 months of preparation, the study was recently submitted by the Pittsburgh Regional Planning Association to the representative Allegheny Conference on Community Development which requested that the study be made. The Conference has approved the report and presented it to city officials for consideration and action.

"This parking study," the summary and recommendation section states, *"reveals the absolute necessity for the adoption of drastic corrective and protective measures."* Added concern is expressed, *"The city must prepare to control its approaching traffic floods by building a series of reservoirs —by constructing a planned system of off-street parking facilities."*

Thirty-Two New Facilities

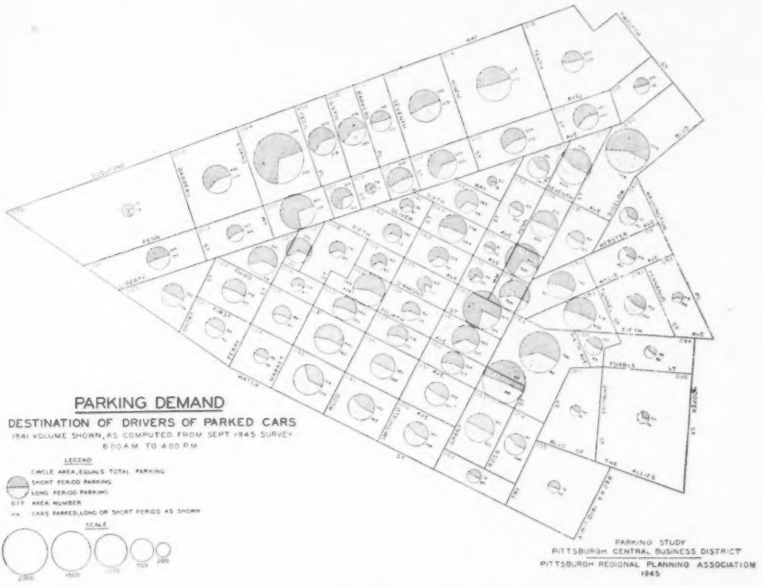
Recommended facilities consist of 32 units—17 for customer and 15 for employee parking—to be municipally owned, or leased, and operated by the city through a municipal parking authority.

Twenty new parking garages eventually would be constructed of three to five parking levels each, and one new lot would be added. Seven existing garages and four lots would be leased by the authority for the present under a purchase agreement. Total cost would be in excess of $34,000,000 with the financing program, allowing for contingencies, set at $36,000,000.

Immediate inauguration of the program is recommended with initial action confined to construction of five parking garages of 4,300 capacity costing $9,650,000. This beginning would serve to better guide additional construction, the report states.

Financing

Financing would be accomplished by 30-year Revenue Bonds issued by the authority. Revenues would be derived from parking fees. An issue



This parking demand chart taken from the report separates short-time parking demand from long-time parking demand. Three hours duration of parking was considered the dividing line.

of $10,500,00 would cover the initial program.

Pittsburgh's downtown parking needs were determined in a special traffic origin-and-destination study made by the state highway department with Federal Aid assistance, which was broadened to include parking habits and needs. With conservative estimates of traffic increases in mind, it was determined that Pittsburgh requires a total of 26,676 spaces, of which slightly more than half are long-time spaces for employees. At present there are 12,500 off-street spaces.

Traffic Increase Set at 50%

The Pittsburgh study envisions an increase in traffic volume of 50 per cent in 1960 as compared with that of 1941. Projected express highways and street improvements serving the downtown area make it all the more urgent that speedy action be taken, the study emphasizes.

"What use is a highway or street if, when a motorist arrives at his destination, he is unable to park his car while he transacts business? Looking at the problem in this manner, one must recognize parking facilities as a part of, or an extension of, the roadway and street system."

City Parking Authority

A city parking authority, with power to acquire sites, construct facilities and operate them, would, the report believes, assure an attack on the problem commensurate with its magnitude, and would result in a permanent, coordinated system of park-

CROUSE-HINDS

A 50th Anniversary

HALF A CENTURY OF ACHIEVEMENT

1897 Fifty years ago two men each had an idea. Huntington B. Crouse had an idea. He wanted to be a business man. Jesse L. Hinds had an idea. He wanted to manufacture articles for the electrical trade. A mutual friend brought the two men and their ideas together and on January 18, 1897 the Crouse-Hinds Electric Company was born. It manufactured electrical switches, panelboards, switchboards, and the patented Syracuse Changeable Electric Headlight for trolley cars. The headlight was the forerunner of the extensive line of lighting equipment manufactured later.

1903 The partnership was replaced by a corporation — Crouse-Hinds Company.

1906 A newly invented line of electrical conduit outlet bodies with threaded hubs was now manufactured. A new name was needed, so the word "CONDULET" was coined. It was adopted as a trade mark and registered in the United States Patent Office. Condulets were destined to revolutionize electrical conduit installation practice.

1910 Mr. Crouse formulated a firm policy of equal discounts to all distributors and equal prices to other purchasers. Revolutionary in those days, it has since been generally adopted by the electrical industry.

1911 On a 25-acre plot of land the cornerstone of the present plant was laid. Additional acres and buildings have been added since.

1915 Crouse-Hinds made the first of its now extensive line of floodlights.

1922 Crouse-Hinds built the first modern four-way three-section traffic signal.

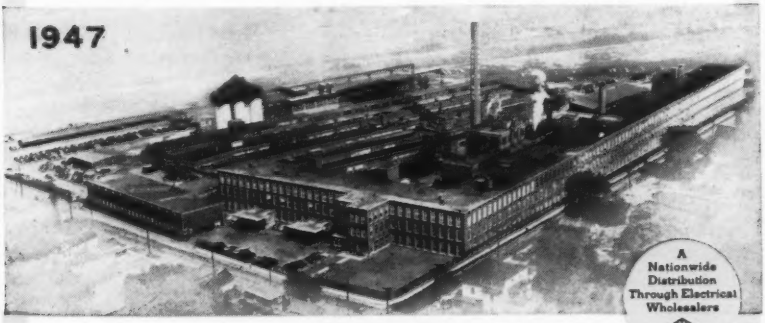
1927 Crouse-Hinds developed equipment especially designed for airport lighting.

1929 Pioneer in sports lighting, Crouse-Hinds installed a complete lighting system in a major college football stadium — at Syracuse University.

1932 Crouse-Hinds issued the first complete catalog of a line of Explosion-Proof Condulets.

1943 Upon the death of Mr. Huntington B. Crouse, Mr. William L. Hinds succeeded him as President of Crouse-Hinds Company.

1947 Now, after fifty years, the Crouse-Hinds Company has the same objectives with which it started — to make a good product better and to deal fairly and honestly with all.



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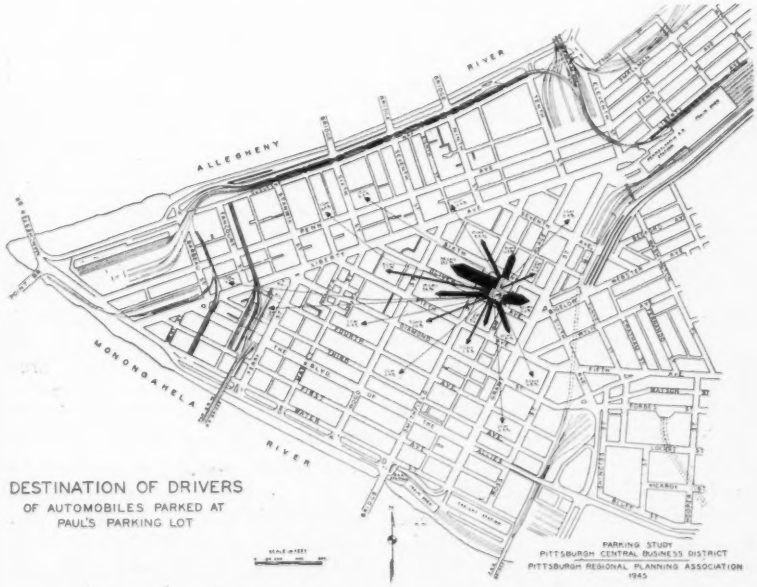
ing facilities located where needed. The door is not shut completely on private enterprise, however, as the recommendation includes provisions for controlling "through licensing all parking facilities not immediately operated by the Authority . . . "

Many facts of general interest were uncovered by the study . . . Cruising traffic looking for places to park now accounts for up to 17 per cent of traffic in the Golden Triangle . . . Parking facilities are so lacking that some 10,000 cars are parking illegally daily . . . More parking spaces are needed for downtown workers than for shoppers . . . People in the area on business are reluctant to walk more than three or four blocks or 1,000 feet . . . Most shoppers prefer attendant parking . . . During rush hours there are only 319 legal curb parking spaces in downtown Pittsburgh — 845 at other times . . . Property evaluations of the area roughly composing the downtown business district dropped 27.6 per cent or $97,667,000 in 10 years . . . Pittsburgh's downtown business district covers 330 acres of which 37 acres are taken up by parking lots and garages, and 90 acres by streets, alleys and walks, and 203 acres remain for business use.

The Pittsburgh Regional Planning Association is headed by Richard K. Mellon, president, with Wallace Richards serving as secretary and as executive officer of the staff. The basic traffic portions of the study were the responsibility of Donald M. McNeil, technical director of the study and traffic engineer of the Bureau of Traffic Planning, City of Pittsburgh.



This chart depicts graphically the distances walked by and numbers of persons parking in one particular parking lot. A questionnaire survey revealed this information, which is shown in the report for several off-street parking facilities.

Turnpike Accidents Compared With Rural Roads

by DAVID M. BALDWIN, *Associate Member, I.T.E.*
Traffic Engineer, National Safety Council

National Safety Council statisticians have taken the pulse of one of the nation's most modern traffic arteries—the Pennsylvania Turnpike and found the human element still the underlying factor in accidents, despite all the engineering skill and ingenuity devoted to this highway of tomorrow.

The special study, undertaken in cooperation with the Pennsylvania Turnpike Commission, used 1941 accident experience—the last year of so-called "normal" traffic.

Analyses of the 160-mile divided, concrete highway between Pittsburgh and Harrisburg shows that the Turnpike allows a speed-up in traffic demanded by the tempo of modern living, while, at the same time, reducing the normal accident danger by 30 per cent.

Death Rate Lower

Vehicles piled up 242,190,000 miles of travel on the Turnpike during 1941. Of the 501 Turnpike accidents reported for that year, 26 persons were killed in 20 fatal accidents, 193 accidents resulted in personal injury, and property damage of more than $50 occurred in 203 of them.

The death rate for the Turnpike was 10.7 deaths per 100,000,000 vehicle miles—lower by 30 per cent than the 1941 rate for all rural highways in the United States, and 27 per cent below the rate for the same year for all rural highways in Pennsylvania.*

Highway	1941 Death Rate (per 100,000,000 vehicle miles)
Pennsylvania Turnpike	10.7
All rural roads in Pennsylvania	14.7
All rural roads in United States	15.2

* Rural mileage estimated by Public Roads Administration, rural deaths from reports of the Pennsylvania Bureau of Highway Safety.

Some Hazards Increased

The Turnpike has not eliminated all accidents and actually has increased the hazard of some types, the data revealed. Safety features built into the controlled access highway are somewhat balanced by the increased hazards growing out of driver inability to cope with the very speed which the highway permits.

A breakdown by day of the week revealed accident peaks on week-ends as might have been expected. Analysis of accidents by hours indicates a peak in the afternoon with a definite drop after 6 P.M. They then continue at a rather uniform rate until 2:00 in the morning.

The report revealed that 17 of the 20 fatal accidents and 64 per cent of the total mishaps occurred in daylight. This sharp reversal of the experience of the entire country was attributed to the low number of pedestrian accidents which are common at night in most rural areas.

Some Accidents Eliminated

From a safety viewpoint, the following characteristics are superior to older conventional highways:

1. Pedestrian accidents have been virtually eliminated, because persons on foot, other than those alighting from stopped cars, are not permitted access to the highway. Only one pedestrian death occurred in 1941.

2. There were few head-on collisions. The highway is designed to separate traffic moving in opposite directions through the use of a 10-foot dividing strip. Only 16 of the 501 accidents were of the head-on type.

3. Intersection accidents virtually have been eliminated. No railroad or highway crosses the Turnpike at grade.

The Turnpike had more accidents of certain type than the average rural highway. They were:

1. A large number of rear-end collisions—approximately one-fourth of all 1941 accidents—apparently resulted from the wide differences in speed on the Turnpike and driver misjudgment of distances. Passenger cars traveling at high speed frequently rammed or sideswiped the rears of slow-moving trucks or other vehicles in overtaking and passing, despite the presence of a passing lane.

2. Accidents in icy weather were almost four times more frequent than on other highways. The snow-belt location of the Turnpike and the higher speeds, plus high winds, numerous shady spots in the mountainous section —and lack of caution by the drivers themselves—undoubtedly contributed to such mishaps.

3. Far higher than the average in rural areas was the number of fixed object collisions on the Turnpike—with vehicles usually hitting the guard rail adjacent to the traffic lane. Such accidents accounted for 25 per cent of the total.

Only One-Third of Accidents on Curves

Slightly more than half of all accidents occurred on tangents, an indication that the straightaways were hazardous when vehicles moving in the same direction operated over a wide range of speeds. Curves accounted for 28 per cent of all accidents and the other 19 per cent were distributed between intersections, structures, transitions in roadway type, and toll house installations.

A comparison of rates on tangents of varying lengths indicated little effect until the length reached nine miles or more. In these long stretches of straight roadway, the rate was less than two-thirds that of tangents under four miles long. Grade appeared to have little effect on the tangent accident rate, although no grade on the Turnpike is over 3 per cent.

A considerable number of collisions resulted from cars which failed to observe warnings in approaching toll booths where cars were stopped to pay fares. Most of the accidents took place at one toll booth beyond a curve and on a grade.

Since conflicting traffic has been mainly eliminated through the separation of traffic moving in opposite directions, it is interesting to note the conflict between cars moving in the same direction on tangents. A cross-classification of accident types by highway elements reveals that 41 per cent of the two-vehicle collisions involved a rear-end or sideswipe collision between vehicles moving in the same direction on a straight road, while only 10 per cent of the total accidents of this type happened on curves.

Human Factor Major Element

Obviously, the human element was the major factor involved in these accidents, for judgment was apparent-

ly in error with cars moving too fast for conditions.

The human factor also appears in an analysis of non-collision accidents, with the straightaway again proving as dangerous as the curve. Of the "overturned in roadway" accidents, 58 per cent occurred on tangents and 36 per cent on curves. This split is almost directly proportional to the mileage on the two elements. Slightly more than half of the "ran off roadway" accidents occurred on tangents, and nearly all the others on curves.

Three-quarters of all the vehicles involved in Turnpike accidents were passenger cars. Twenty per cent were trucks and buses—a figure somewhat higher than commercial vehicle mileage would indicate. However, many slower trucks and buses were involved in accidents when they were hit from behind by faster passenger cars.

A 70 mile per hour speed limit placed in effect on the Turnpike in August, 1941, apparently did not have an appreciable effect on fatal accidents; although comparable before-and-after periods were difficult to obtain because traffic fell sharply early in 1942 with the imposition of wartime restrictions on travel. During the first five months of 1941 there were six fatal accidents on the Turnpike, when there was no speed limit. The same number occurred during the first five months of 1942, when the speed limit was in effect.

Reprinted from Public Safety Magazine, Dec., 1946.

MANY PARTS OF CAR "GROWN" ON FARMS

You might not think of farmers as contributing to the building of metallic products like automobiles, but let us look under the hoods and see the relation between agriculture and the automotive industry.

Although motor vehicles are complex mechanisms in which metals are the major components, the non-metallic components are indispensable and in a typical year the automotive industry purchases at least $35,000,000 worth of farm products.

Estimates have been made that agricultural products from one million acres go into the building of two million motor vehicles. As an indication of the role the motor industry holds as a farm customer, 65 per cent of all the leather consumed in the United States, 10.5 per cent of the cotton and 36.6 per cent of the mohair is used by automotive plants.

According to the most recent tabulations, based on a production of 2,665,171 vehicles, the motor industry's direct use of farm products accounted for the following consumptions:

550,000 bales of cotton for textiles, valued at $23,100,000;
24,432,000 pounds of cotton linters for seat padding, worth $610,000;
15,432,000 pounds of wool for upholstery and floor coverings, valued at $2,946,000;
6,300,000 pounds of mohair for upholstery, worth $2,192,000;
The hides of 256,000 cattle, worth $1,797,000;
The fats and hair from 36,000 hogs:
590,000 tons of sugar cane for solvents, valued at $1,534,000;
680,000 bushels of soy beans for oil and plastics, worth $654,800;
1,115,000 bushels of corn for alcohol, paints, varnishes, worth $579,800;
174,000 bushels of flaxseed for paints and soaps, worth $326,700;
4,828,200 pounds of turpentine for paints, worth $326,700;
18,590 pounds of beeswax.

In this tabulation a large number of farm products had to be omitted because of the impossibility of estimating their consumption. Among these were wood pulp, wheat straw and other cellulosic materials. Excluded also were those agricultural products principally imported, such as rubber, jute, sisal, castor beans, cork, chamois, silk and tung nut oil.

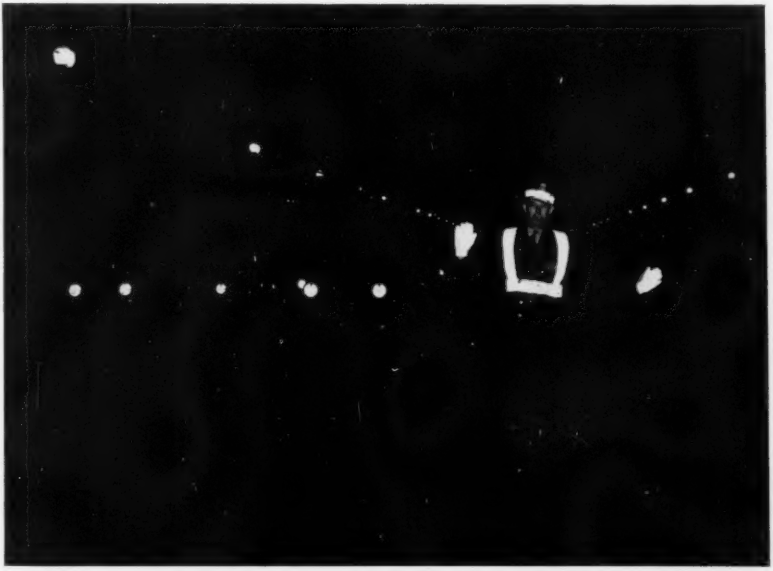
—Automobile Facts

SCOTCHLITE SUSPENDERS PROTECT OFFICERS

In Washington, D. C., Constitution Avenue west of 15th street is under the jurisdiction of the United States Park Police. During the morning and evening rush-hours Police Officers control traffic at the various intersections on this heavily travelled six-lane black top street. In addition to private auto and truck traffic, the problem is aggravated by bus loading zones and streams of pedestrians which pour into and out of the Navy and Munitions Buildings.

In the fall and winter when darkness sets in early, police officer traffic control becomes very hazardous. Not only is the safety of the officer in jeopardy but inability to see the officer's commands puts the motorist in a very untenable position. How to make the traffic officer and his indications visible during the dark hours when traffic requires police officer control consequently has been the subject of considerable concern.

Captain Mark H. Raspberry of the United States Park Police has recently been exploring the possibilities of a device which is intended to give his traffic officers protection and confidence while they expose themselves to the hazards of controlling heavy traffic volumes under night driving conditions. Pictured here on one of Captain Raspberry's officers is the device, a belt and suspender combination, hat band and gloves made of Wide Angle "Scotchlite" Fabric—a material which accepts and reflects light at very wide angles of incidence. This material can be fabricated into almost any sort of device or piece of wearing apparel merely by sewing. The belt worn by the officer is about three inches wide and the hatband is about one and one-half inches wide. Captain Raspberry has inaugurated a system of issuing these items of equipment at roll call and having a scout car pick them up when the rush period is over.



Captain Raspberry remarks—"Our traffic officers have been complaining about the hazard of doing night traffic duty, while motorists complained that they could not see the officers". Commenting on the manner in which the officers on duty reacted to the equipment, Capt. Raspberry said — "Normally police officers are very reluctant to wear or carry any more equipment than is absolutely necessary and show resistance when an effort is made to supply them with anything additional; however, I have never seen my men so enthusiastic about anything as they have been about this protection which we have provided."

Typical comments already heard from motorists include:—"are those things the officers are wearing illuminated?"—and "—is a special light thrown on the belts".

Expressing his feelings Captain Raspberry stated, "We have made numerous attempts to devise some means of offering our police adequate protection from serious injury while directing traffic, but the new Safety Belt and other equipment made of "Scotchlite" seems to be the answer. The many comments we have received from motorists as well as the officers themselves have convinced me that we have finally hit on the right idea and I strongly recommend their adoption by other departments. It is actually astonishing the way an officer stands out under the beam of automobile headlights. If this belt saves one officer from serious injury or death, the cost, regardless, will be insignificant."

WORLD'S LARGEST MOTOR TRUCK TERMINAL

The Civilian Production Administration on January 7, 1947 authorized the Port Authority to proceed with construction of the world's largest union motor truck terminal, a "post office" for over-the-road truck freight. The $5,000,000 terminal, the first in a series to be built by the Port Authority, will be 1,000 feet long and 160 feet wide. It will extend between Spring and West Houston Streets and Greenwich and Washington Streets.

Pick-up and delivery service for over-the-road carriers who operate in the union terminal, will be performed by local truckmen operating mosquito fleets for the consolidated movement of the truck freight.

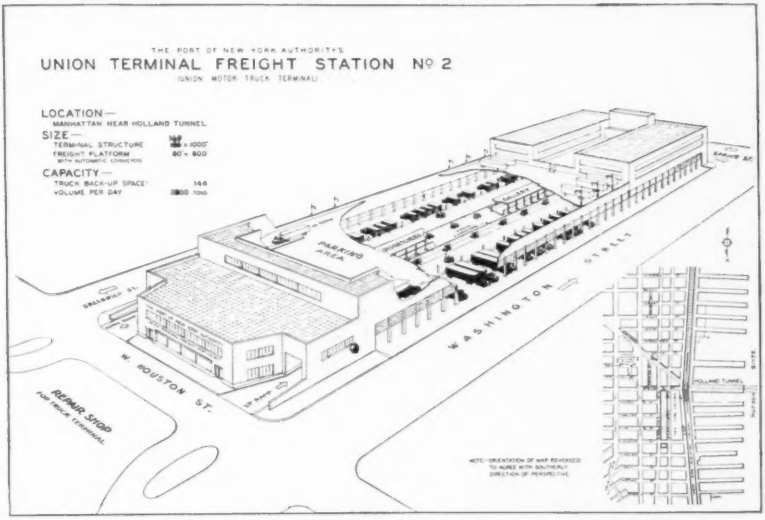
The roof of the two-story structure will accommodate possible helicopter cargo pick-up and delivery, as well as parking space for 70 complete tractor-trailer units.

The terminal will have off-the-street bays for 144 trucks. The 800 x 80 feet freight platform will be equipped with an overhead chain conveyor serving both sides of the island platform by means of trailers.

A few blocks from the Holland Tunnel and close to the steamship piers, as well as the main north and south trucking arteries on the West Side and the proposed southerly extension of the West Side Highway to the Brooklyn-Battery Tunnel, the terminal will be an important factor in the reduction of traffic congestion in Manhattan. It will be capable of handling over 2,000 tons of merchandise freight daily, and will save 1,830,000 truck miles and 15,600,000 truck tire miles a year. It is estimated that rehandling of freight will be held to 15 per cent. This is an increase in efficiency of 25 per cent over any existing terminal. Efficiency of road-

haul units will be increased 20 per cent by prompt turnaround.

The Port Authority's second union motor truck terminal will be built in Newark on a 29-acre site, immediately south of Newark baseball grounds and east of Route 25. It will cost $2,650,000.



A.A.S.H.O. HOLDS ANNUAL MEETING

Highway officials of 46 States, two Territories and the Federal government, meeting in Los Angeles in December, reported that road construction currently is running at approximately pre-war levels, on a dollar basis, and that the need for replacement and reconstruction is enormous.

It was the 32nd annual session of the American Association of State Highway Officials, which elected C. W. Phillips, of Tennessee, as 1947 President, succeeding M. J. Hoffmann, of Minnesota.

The speeches, resolutions and panel discussions heavily underscored the need for long-range planning, with the achievements of California in that field this year receiving unanimous praise and approval.

The problem of urban traffic congestion also was emphasized, together with the need for widespread support of the "Action Program" adopted in 1946 by the President's Highway Safety Conference.

"Public Works" Concept of Roads Is Challenged

Highlight of the speaking program was an address by Public Roads Commissioner Thomas H. MacDonald, in which he branded as "extremely fallacious" the traditional "public works" concept of highway construction and maintenance.

Under the "public works" concept, the volume of highway construction would be regulated to take up the slack of employment, or to meet other economic and social goals.

This approach, Mr. MacDonald said, ignores the essential services rendered by highway transportation, and the necessity for continuous and planned

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Use "Centerlite"... compare it wi any other pavement marking mate you've ever used. Compare its e application . . . its nighttime b liance . . . its long life. Then yo standardize on "Centerlite," the p mixed reflective compound. Wr Dept. TE247 for full details.

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replacement and improvement of road facilities.

In his address, Commissioner MacDonald also:

Asserted that highways of limited-access design represent the only solution to the acute congestion problem in metropolitan areas;

Reported that 27,218 miles of federal-aid highways, or 14.5 per cent of the country's total, are worn out or obsolete, and require reconstruction;

Pointed out that 14,000 miles of two-lane roads, all main traveled routes, carry more than 3,000 vehicles daily, and should be made four-lane highways;

Underscored the vital role which highway transportation must play throughout the world in sustaining the economies of nations where people today are starving.

User Taxes Compared With Operating Costs

Commissioner MacDonald presented figures showing that total highway expenditures in the U. S. have decreased in recent years, despite the amounts channeled through WPA and other agencies during the depression.

Discussing taxes, he pointed out that 1946 imposts on road users, both federal and state, totaled approximately three quarters of a cent per mile traveled. This is not more than 18 per cent of operating costs, probably less; it represents less than the differential between operating over smooth and rough roadways.

Substantial Federal-Aid Held Essential

Retiring President Hoffmann, in his annual message, said that substantial and continuing federal-aid is essential to progress in developing the nation's highway system, and that repeal of federal road user taxes would jeopardize this program. He emphasized the importance of working out state administrative and fiscal relationships with cities and counties, and urged the officials to extend their efforts in keeping the public fully informed on all major problems.

Congressman J. W. Robinson, of Utah, Chairman of the House Committee on Roads, declared that the 1944 Federal-Aid Highway Act, a milestone in road legislation, has set national policy for years to come, and urged that the program it outlines be pushed vigorously by the state highway departments.

Referring to the complex and urgent metropolitan problems, the Congressman suggested that arrangements be made for immediate financing of necessary projects by the cities, with the costs amortized over a period of years through federal-aid administered through the state highway departments.

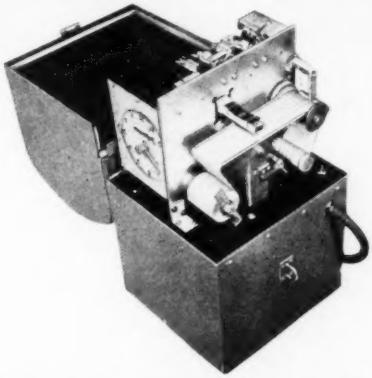
Such a plan, he said, might be feasible under the present law, in cases where cities have long-range programs, and can execute appropriate contracts with the state. If necessary, he said, the federal-aid act could be amended to permit this arrangement.

Origin-Destination Surveys Discussed

The need for careful and factual planning of programs was discussed in numerous sessions, with special attention to the work just completed in California and to the origin-and-destination survey techniques perfected during the last three years by the Public Roads Administration, assisted by the Bureau of the Census.

The accuracy and value of these studies have been demonstrated, the discussions disclosed, but their full application has not yet been made. Only one city in the country (Fort Wayne, Indiana) has utilized the surveys to maximum extent in setting up a complete program for improvement of highway and parking facilities to meet future requirements.

A preliminary report was made on the joint study by the P.R.A. and the National Safety Council, in coopera-



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2. "Mechanical counting equipment supplies most of the traffic information gathered."

3. "In every case (of planning for new roads and improvement of old roads) the value of traffic plays a very important part in determining the extent of such work and mechanical counting equipment has been found to be essential in economically gathering such data."

The Trafficounter is twice as fast as any other counter of motor traffic; essentially an electric counter which records the over-lapping cars as they cross the detector. It assures accuracy, is on the job 24 hours a day, and will save many man hours. **Streeter-Amet Company**, 1726 Belle Plaine Avenue, Chicago 13, Illinois.

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tion with numerous highway departments, to determine the relationship between the design of the road and the type and frequency of accidents.

The study indicates that width of pavement, and width of bridges in relation to their approach roads, are major factors. For maximum safety of large traffic volumes, controlled access roads are necessary.

Resolution Asks That C.P.A. Restrictions Be Lifted

One of 13 resolutions approved by the Association on the final day calls upon the Civilian Production Administration to terminate all restrictions on the manufacture, sale and use of road construction equipment, declaring that these controls are unnecessarily impeding highway improvements.

Other resolutions included:

A strong plea for support of the "Action Program" of the President's Highway Safety Conference. The highway officials pledged their cooperation nationally, through their Association, and individually in their own state safety programs;

Commending the Legislature and the California Highway Department on the engineering survey completed in 1946. (See Highway Bulletins Nos. 11 and 12, October 29 and 30, 1946).

The same thought was expressed by several speakers, including Commissioner MacDonald and President Hoffmann, who said of the California studies:

"They serve to remind us at a timely moment of the tremendous importance of good highway planning to the future progress of our state programs."

Seek Completion of Pan-American Highway

Another resolution asks Congress to adopt a policy furthering completion of the Pan-American Highway, including the provision of funds as needed from time to time.

Another requests the federal government to allocate surplus road construction equipment on a fixed percentage basis, and is critical of the distribution of this machinery up to the present.

The Association asked the Federal Communications Commission to give highway departments the same latitude in the use of two-way radio it has accorded to utilities, truck users and others.

N.U.T.I. BEGINS SPRING COURSE WITH 35 OFFICERS

Thirty-five police officers began the 1947 spring course in traffic police administration at the Northwestern University Traffic Institute on Feb. 3. This comprehensive course in traffic control and accident prevention will run for four and a half months. It includes more than 600 hours of classroom work, projects, demonstrations and a one-week field study trip.

The 35 officers were chosen from scores of applicants in nation-wide competition. They represent 22 city police departments, four state police departments, one state motor vehicle department, one sheriffs office, the Chungking and Shanghai police departments and the Chinese Ministry of Interior.

Of the 35 officers named by the Institute Board of Selection, 16 received awards from the Kemper Foundation for Traffic Police training. The Foundation furnished eight $650 fellowships and eight $200 tuition scholarships to city police officers. Seven similar fellowships and one scholarship were granted members of state police departments, a state motor vehicle department and a sheriff's office by the

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Automotive Safety Foundation, Washington , D. C. The other U. S. officers were declared eligible to attend as tuition-paying students.

Five Chinese police officers, sent to this country by the Chinese National Government to study American police methods, will attend the course as special students.

Members of the Board of Selection were: T. P. Sullivan, director of public safety for Illinois, and president of the International Association of Chiefs of Police; W. Dean Keefer, vice-president of the Lumbermens Mutual Casualty Company, representing the Kemper Foundation; Norman Damon, vice-president, Automotive Safety Foundation, and Russell Kohr, assistant director of admissions, Northwestern University.

Winners of Kemper fellowships were:

Sgt. William E. Bresingham, Chicago, Ill.
Ptlm. George W. Scholer, Columbus, O.
Sgt. William Garrett Hague, Indianapolis, Ind.
Ptlm. Edward P. Hogan, Worcester, Mass.
Lt. H. Raman Schlicht, Peoria, Ill.
Ptlm. Carl J. Basl, Pittsburgh, Pa.
Lt. Loraine T. Johnson, Washington D. C.
Ptlm. John J. Neary, Brookline, Mass.

Winners of Kemper scholarships:

Sgt. Reginald V. Goodbread, St. Petersburg, Fla.
Sgt. John Michael Flaherty, Tampa, Fla.
Ptlm. Warren C. Eddie, Lansing, Mich.
Lt. Wyman W. Vernon, Oakland, Calif.
Ptlm. John Mahoney, Hammond, Ind.
Sgt. Louis W. Rosteck, Little Rock, Ark.
Sgt. Herbert John Dood, Muskegon, Mich.
Sgt. Andrew F. Crabtree, Portland, Ore.

Alternates for Kemper scholarships:

Ptlm. Clarence Edward Helm, Boise, Ida.
Sgt. Fred J. Bennett, Walla Walla, Wash.
Off. Fred H. Glanville, Palo Alto, Calif.

Declared eligible to attend as tuition-paying students:

Sgt. Earl L. Fitch, Richmond, Calif.
Sgt. Francis E. May, Ft. Lauderdale, Fla.
Sgt. John W. Gompper, E. Hartford, Conn.

Winners of Automotive Safety Foundation fellowships were:

Off. Jerome F. Smith, Connecticut State Police
Off. Frank M. Dowling, Connecticut State Police
Corp. Elmer C. Paul, Indiana State Police
First Sgt. W. P. Umpleby, Ohio State Highway Patrol
Insp. Charles F. Fromherz, Jr., New Jersey Motor Vehicle Department
Tpr. Samuel M. Conrad, Maryland State Police
Tpr. Edward W. Everhart, Maryland State Police

With the graduation on January 25 of the Institute's 1946 fall course in traffic police administration, 328 police officers will have attended this comprehensive course in the past eleven years. In addition, more than 1,150 other officers have attended two and three-week traffic police training courses at the Institute.

Cities To Own and Operate Parking Garages

Two U.S. cities now are building municipally financed and operated parking garages, first of their kind in the nation, according to the American Public Works Association. The cities are Wheeling and Bluefield, W. Va.

The Wheeling municipal garage will be a three-deck 700-auto capacity building in the downtown business district and will be financed by self-liquidating bonds. The Bluefield 800-car garage, on which construction already has begun, is slated for completion by late 1947. The structure has five floors for parking and is being financed by $450,000 of revenue bonds.

San Francisco and other cities have built parking garages with city money but have turned them over to private concessionaires for operation. Detroit, Los Angeles and Philadelphia have planned garages on that basis. The two West Virginia cities, however, will operate their garages as direct municipal services.

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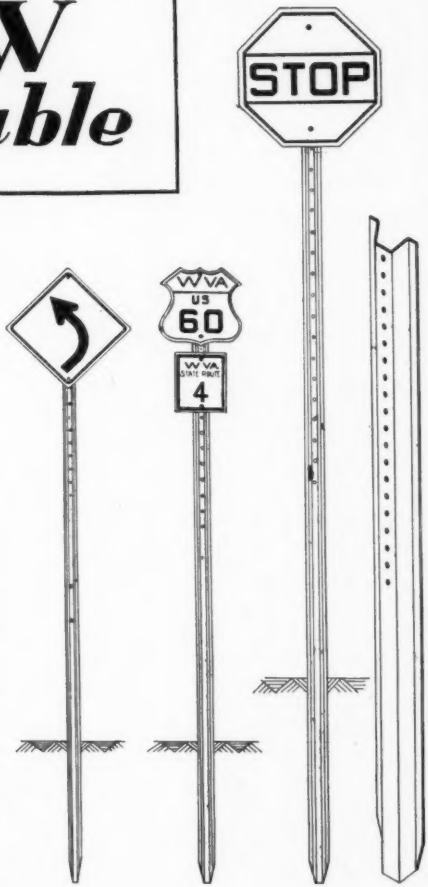

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ITE NEWS AND PERSONALS

TRAFFIC ENGINEERING CLINIC TO BE FEATURE AT NEW YORK SAFETY CONVENTION

On Thursday afternoon, March 27, at 2:00 P.M., Conference Room 2, Pennsylvania Hotel, New York City, will be the setting for the Traffic Engineering Clinic, one of the traffic sessions to be staged as a part of the 17th Annual Safety Convention of the Greater New York Safety Council.

Under the chairmanship of Arnold Vey, New Jersey State Traffic Engineer, a panel of seven "experts" will answer any and all questions put to them on traffic engineering. Session arranger Wilbur Smith, Associate Director of the Yale University Bureau of Highway Traffic, has already requested and received from numerous traffic authorities a collection of questions which demand answers, hence this stockpile will be used to supplement questions from the floor.

The panel will consist of the following men:

Mr. Louis E. Bender, *Traffic Engineer, The Port of New York Authority*

Mr. Fred W. Fisch, *Principal Planning Engineer, Dept. of Public Works, New York State*

Mr. Sidney Shapiro, *Dept. Chief Engineer, Long Island State Commission*

Mr. Henry K. Evans, *Director, Traffic Engineering Division, National Conservation Bureau*

Mr. Fred W. Hurd, *Yale Bureau of Highway Traffic*

Mr. John T. Gibala, *Civil Engineer, Engineer's Office, N. Y. Police Department*

Mr. Merwyn Kraft, *Accident Prevention Engineer, American Transit Association*

This session is jointly sponsored by the New York Metropolitan Section, Institute of Traffic Engineers and the Greater New York Safety Council.

Education Session

Under the chairmanship of W. Graham Cole, Assistant Secretary, Metropolitan Life Insurance Company, and a Member of I.T.E., the Traffic Education Session will hold forth at 9:45 A.M., Thursday, March 27, in Conference Room 2. The program will center on three talks, as follows:

"National Efforts Toward Traffic Safety Through Education," by W. Earl Hall, Editor, *Mason City Gazette*, Mason City, Iowa; Chairman, National Committee for Traffic Safety

"Developing Community Interest in Traffic Safety," by Roscoe Ellard, Associate Dean, Graduate School of Journalism, Columbia University

"What Industry Can Do Toward Traffic Safety," by Robert C. Haven, Safety Engineer, Continental Baking Company

Enforcement Session

At 9:45 A.M., on Friday, March 28,

in Conference Room 2, Chairman James J. Sheehy, Asst. Chief Inspector, Commanding Officer, Traffic Bureau, New York Police Department, will open the Traffic Enforcement Session. This program was arranged by Thomas N. Boate, Director, Special Services Division, National Conservation Bureau. The schedule of subjects and speakers will be as follows:

"Traffic Police Training," by Col. C. H. Schoeffel, Superintendent, Dept. of State Police, Trenton, N. J.

"Traffic Engineering and the Police," by Lt. Col. F. M. Kreml, Director, Traffic Institute, Northwestern University

"Safe Driver Clinics and Psychophysical Tests," by T. P. Cahalan, State Police, Harrisburg, Pa.

Commercial Vehicle Sessions

Wednesday morning and afternoon, Conference Room 2 will hold Commercial Vehicle Sessions #1 and #2, arranged by John Cost, Supervising Staff Engineer, New York Telephone Company. The first session will be held under chairmanship of Ralph H. Bell, Insurance Manager, United Parcel Service Co., and consist of talks on the following subjects:

"Incentive Plans for Safe Driving"

"Classifying Accident Causes"

"Modern Preventive Maintenance"

The second session (afternoon) will be under the chairmanship of Charles Wendorf, Safety Director of Sheffield Farms Co., Inc., and feature talks on the following subjects:

"Alex and the Looking Glass." The man behind the wheel under the microscope of representatives of typical pedestrians and public groups.

"Selection, Testing and Training of Driver-Employees." How a large cross-country van operator delivers the goods safely and punctually, by a system of selection, testing and training its driver personnel.

PERSONAL ITEMS

Herbert B. Woodling (Assoc. Member) has been appointed Safety Engineer of Akron, Ohio, to handle all matters pertaining to traffic and safety. Previously he was acting traffic engineer. On Jan. 1, 1947, the traffic sign and paint shop, formerly under the Police Dept., and the parking meters, formerly under the Finance Dept., were put under Woodling's supervision, in a move to centralize all traffic engineering responsibilities under one authority.

Raymond F. Riegelmeier (Member) has formed a new company known as Riegelmeier's Traffic Services, and is devoting his activities to central and eastern Pennsylvania, handling accounts of the Prismo Safety Corp., Automatic Signal Corp., Eagle Signal Corp. (except Phila. area), Baltimore Paint and Color Works, and S. G. Adams Co. signs. Other items will be handled too. Ray was formerly State Traffic Engineer for Pennsylvania, and at one time served as advertising manager of the TRAFFIC ENGINEERING magazine.

Robert F. Royster (Jun. Member), formerly with the American Transit Association, has left that organization to become affiliated with the Doubleday Publishing Concern, in personnel work. Royster graduated from the Harvard Bureau of Street Traffic Research in 1938.

Donald Berry (Assoc. Member), Director of the National Safety Council's Traffic and Transportation Division, is basking in the glory of being the papa of "Miss Safety Pin Up." Don's youngest, Miss Jeanne Berry, aged eight months, was given the official distinction and title at the National Safety Congress last fall and has had her picture in numerous magazines and newspapers since then.

D. W. Loutzenheiser (Assoc. Member), Sr. Highway Engineer, Dept. of Design, U. S. Public Roads Administration, reports that he is literally losing one of his right arms, as his assistant, Charles French, is being transferred to Trenton, N. J., to do planning in the New Jersey P.R.A. district office.

SECTION NEWS

Earl Hall to Address New York Section

Those attending the March 26th dinner meeting of the New York Section will be privileged to listen to W. Earl Hall, Chairman of the National Committee for Traffic Safety, managing editor of the *Mason City Globe-Gazette*, and for many years an outstanding leader in safety. Mr. Hall's subject will be "It's Time To Quit Yawning," and those who have listened to this outstanding speaker and personality before promise that Mr. Hall will really "hit the nail on the head."

The dinner meeting will begin at 6:30 P.M., and is scheduled for the President Tavern, 41st at Lexington Avenue, New York City. Out-of-Towners attending the Greater New York Safety Council Convention (traffic sessions, March 27 and 28) are extended a special invitation to attend the meeting.

W. Earl Hall was born in Iowa in 1897, attending the University of Iowa (B.A., 1918). He served in World War No. 1, and later became managing editor of the *Mason City Globe-Gazette* at the age of 22. He was State Commander of American Legion, 1932-33, first president of Iowa Safety Council, 1934-39, Vice-president of National Safety Council, 1944, and elected chairman of the National Committee for Traffic Safety in 1946. He has been a member of various State and Federal commissions and boards, and was awarded the honorary degree of Doctor of Laws by Cornell College in 1946.

His hobbies, he says, are weatherlore and barbershop quartet singing.

Washington. D. C. Section

The Dec. 18th meeting was attended by twenty-three members and fifteen guests. The main talk of the evening was given by George Keneipp, Director of Vehicles and Traffic, Washington, D. C. He spoke of proposed plans for improving District traffic including the organization of the District, signalized intersections, street signs, street markings and parking. He also paid special tribute to M. O. Eldridge who is retiring as Assistant Director of the Department of Vehicles and Traffic.

The Jan. 15th meeting was held jointly with the American Institute of Architects, and featured a talk on "Design and Traffic Features of Airports" by Hervey Law, Administrator of the Washington National Airport.

Michigan Section

The December 18th meeting was held at the Flint Athletic Club, Flint, Michigan.

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Attending were:

H. A. Barnes	Ross Harger
J. P. Buckley	Roscoe E. Hefron
C. A. Chayne	C. W. Lucas
Don Crosier	A. F. Malo
B. C. Cyberski	Thos. McCarthy
J. Dobelek	J. C. McMonagle
Charles E. Geisz	Walt Pletcher
M. D. German	A. C. Sherman
Chester Glasgow	E. L. Simm
W. D. Gottschalk	Wm. H. Tigue
Oscar M. Gunderson	J. L. Wehmeyer
Maxwell Halsey	

Mr. McMonagle announced that one of his artists had prepared an I.T.E. design for a cut to be used by the Engineering Society of Detroit in announcing I.T.E. activities.

Lloyd B. Reid and J. L. Wehmeyer were appointed to complete arrangements for the feature meeting of the winter season which is to be held the latter part of January. Mr. Pyke Johnson, of the Automotive Safety Foundation, will be the speaker of the evening. It is planned to make this an open meeting at the Engineering Society of Detroit and to invite attendance on the part of other affiliate societies and governmental officials.

Mr. McMonagle announced that the 1947 I.T.E. convention will be held in Detroit. After some discussion, it was decided that the offer of convention facilities by the Fort Shelby Hotel should be accepted.

Henry Barnes, who was in charge of arrangements for the evening meeting introduced Mr. C. A. Chayne, Chief Engineer, Buick Motor Car Co., who did a bang-up job in describing a number of the problems encountered in designing and producing automobiles. His talk was so interesting that it stimulated a large number of questions not only on the automobile but on the tie-in of vehicle and highway design and operation.

After Mr. Chayne's talk a movie of the football game between the two Flint high school teams was shown to the group.

LETTERS TO THE EDITOR

Dear Editor:

Several years ago we had a Turkish student named *Orhan Barim* who took our traffic engineering courses, and when he returned to Turkey he was employed as Traffic Engineer for the mass transportation facilities in Istambul. On April 27, 1945, he wrote me a very interesting letter about some of his experiences. I asked him if he would have any objection to the publication of this letter but I have never heard from him since then. I am sending you a copy herewith and if you should think that this was of sufficient interest to publish and had the space for it, I am sure that we could assume that "silence gives consent."

Sincerely yours,

ROGER L. MORRISON,

Professor of Highway Engineering and Highway Transport, University of Michigan

"The traffic engineering position of the streetcar and bus outfit of Istanbul that I occupied for seven months was by no means a dull job. I started work on August 18, 1944, and my first job was to conduct an investigation of a very interesting accident that had happened the night before. There were no fatalities or wounded involved, but it was the craziest accident you ever heard of. So, the press was yelling their lungs out and asking the mystery to be solved. We started the investigation at the time that the accident occurred the night before (2:10 A.M.). All the big heads of our outfit were there. I had studied all the reports during the day, and was jittery as the dickens, for I thought I was taking the most important "bluebook" of my life. Here is what had happened: After the streetcar service had stopped for the night, one of our streetcars was pulling a trailer full of coal and bringing it to one of our repair shops at one terminus of our network. He, the motorman, arrived at his destination with five tons of coal, and called somebody from the shop to unhitch the trailer from the car. While the unhitching was going on, the

A photograph of members attending the Dec. 18th meeting of the Michigan I.T.E. Section. Names are shown under the news item entitled Michigan Section.

motorman opened the windshield and pulled the illumination cord from the trailer, and took the cord into the car still holding it in his hand. Suddenly they hear the motorman yelling and see him whirling in the car like a dervish, one end of the cord still in his hand. Then an unseen force throws the motorman out of the car, and the car starts to move in the opposite direction with full speed. But, the car, instead of running into the trailer and pushing it back, it finds a switch open and passes to the other line, and starts going toward the center of the city with full speed and nobody in it. The trailer slowly comes downhill and smashes into another trailer at the end of the line. The men at the shop run out to help the motorman who is badly hurt from electric shock. While they're working on the motorman they hear a terrific noise approaching around the corner, and shortly they see the same streetcar coming like a bat out of hell. The car smashes into the trailer and two trailers and a car are complete wrecks. It was very lucky, that, during the seven miles that the car covered, it didn't run into anything else, and found just the right switches open to come back to the same spot. Otherwise, on some of the very sharp curves of the other lines, it would have smashed into one of the houses.

"Well, what do you think of the case? A phantom streetcar on the streets of Istanbul! I solved the mystery all right, but it was more of a detective work that I did rather than engineering. The motorman was denying everything, and the witnesses were supporting his story. I had to do a lot of cross questioning to make them contradict themselves, and finally at about 5 A.M. the motorman confessed his carelessness in not turning off the electricity before pulling the cord, in not leaving the car brakes on, and finally intending to make an illegal maneuver that led him to open the switch. Evidently, when the motorman was hit by electricity, and didn't know what he was doing, unknowingly he pulled the control lever to full speed. Anyway, the next day I explained the case to the press, and my first case was a success. But, believe me, I had to work for it.

From then on we've had accidents galore. Fatalities, serious injuries, collisions came one

after another; and I had to tell the press WHY they happened. In seven months we had eleven dead, nineteen seriously injured (crippled), thirty-eight slightly injured, and ninety-two collisions of various sorts. For seven months I worked my head off to get the cooperation of city's traffic police department, for, after all a streetcar runs on its tracks and cannot run here and there, and in most cases it was the fault of the other party that caused the accident. But, the traffic cops didn't give a darn. Our material is very old and we can't get replacements. We have frequent derailments because of lack of new rails. A few months ago we had a terrific snow storm, during which we had to pull in 105 of our 350 cars for various accidental reasons. For seven months I got sick of seeing crushed skulls, cut off legs, kids' bodies coming out from under the streetcars in four or five pieces.

"There were times when I thought I was going nuts. Oh, what sights I saw. I dreamt them for days.

"Through some of my precautionary methods the accident rates had dropped considerably during the late months, but now somebody else is running the machinery that I set up and getting the credit for it."

ON THE SHELF

New Pamphlets Issued by NRSSP

A new series of seven pamphlets are being released this month by the National Roster of Scientific and Specialized Personnel, each treating in detail with a profession or occupation. These descriptions were previously printed on 5″x8″ cards and used extensively

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by U.S.E.S., other agencies and the general public. In the new form, they are printed pamphlets covering occupational summary, description of major branches, a statement of educational and licensing qualifications, professional affiliations, related, fields, and the major sources of employment.

Of special interest to traffic authorities will be several of the following:

2. Engineering Sciences
   - Civil Engineer
   - Electrical Engineer
   - Safety Engineer
5. Miscellaneous Fields
   - Planner

These and others may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., making reference to the National Roster.

New Orleans Traffic Survey Report Released

A 93-page Report of the Traffic Survey of the New Orleans metropolitan area has recently been released by the Louisiana Department of Highways. The survey, made in cooperation with the Public Roads Administration and the city of New Orleans was the first home-interview traffic survey made in Louisiana and among the first of this type conducted in the United States.

The sample interview survey began on March 13, 1944. Interviews totaling 13,029 were made by August 16, 1944 and reports obtained on 42,481 persons using existing facilities in the metropolitan area. Eight external origin and destination stations located on highways entering New Orleans were also operated. Manual classification counts at 520 important intersections and machine counts at 360 other points were made during summer of 1944.

Thirty 4-color charts are contained in the report. Included are charts showing Internal Auto Trips in volume brackets of 750 and over, 300 to 749, and 50 - 299; charts showing Major Directional Desire Lines of Automobile Trips; and charts showing Zone Patterns of Trips to Work and Transit Passengers. Also included are charts showing Parking Characteristics of the Central Business District.

Off-Street Parking Study, City of Lansing, Michigan, 1946. Results of a comprehensive analysis of parking capacity, demand, and future requirements. Charts, 21 pp. mimeo.

Accident Classification Manual, City of Detroit, Department of Street Railways, October, 1946. Detailed classification of transit accidents with corresponding code letters and numbers. 28 pp. mimeo.

Parking Manual: How to Solve Community Parking Problems, by the American Automobile Association. c1946. 181 pp.

Very complete discussion of all aspects of parking. Illustrated with photographs, maps, charts, etc.

Traffic Studies, Surveys and Reports: a Selected Bibliography, by the American Society of Planning Officials. 1946. 9 pp. mimeo.

Detroit's Parking Needs, Central Business District, by the Detroit Traffic Engineering Bureau. 1946. 17 pp., maps, charts, photographs.

Off-street parking facilities, study of destinations of curb parkers at various hours, shortages of adequate facilities.

Traffic Survey Report of Greenville, South Carolina — 1945, by the South Carolina State Highway Department. 1946.

Arterial Plan for New Orleans. Robert Moses, Director; Andrews and Clark, Consulting Engineers. 1946. 35 pp.

Director's report and consultant's report to the Louisiana Department of Highways.

Report on Traffic Congestion and Relief, City of Seattle, 1945, variously paged, charts, maps, etc. mimeo.

Report on traffic volumes and congestion locations. Present remedies: correction of traffic signal progression and adjustment of hours of operation; adjustment of curb space; rerouting of transit equipment; increase of police force during rush hours. Future remedies: Restriction of parking; installation of additional traffic signals; continuance of staggered hours; construction of off-street parking facilities and bypass routes; increased use of alleys for loading and unloading purposes.

Dallas Cordon Count, Central Business District, June, 1946, by the Dallas Department of Traffic Control, Dallas, Texas. The department, 1946. 200 pp. mimeo.

A Traffic Survey of Greater Kansas City, by the Missouri State Highway Department, the State Highway Commission of Kansas, City Plan Commission, Kansas City, Missouri, City Planning Commission, Kansas City, Kansas, Department of Public Works, Kansas City, Missouri in cooperation with the Public Roads Administration, Federal Works Agency. Data compiled and presented by the Traffic Subcommittee of the Greater Kansas City Regional Planning Committee. 1944-1945. unpaged, processed.

A Report on a Subway Plan for Montreal, prepared for Greater Montreal Economic Council by the Montreal Tramways Company. The Company, 1944. 26 pp. maps, diagrams, etc.

Discusses topography, population, existing transit facilities, vehicle ownership, traffic trends; possible solutions such as street widening, express highways, subways; a subway plan with proposed routes, physical features and estimates of cost.

Parking Survey: Report and Recommendations, 1946, New Rochelle, New York, by the National Conservation Bureau, Traffic Engineering Division in cooperation with the New Rochelle Bureau of Police. National Conservation Bureau 1946. 37 pp. mimeo. charts and graphs. Price 50c.

Traffic Study, by Future Springfield, Inc. Future Springfield, Inc., 1946. 20 pp. processed.

Illustrated pamphlet on traffic conditions in Springfield, Massachusetts; Describes present agencies dealing with traffic problems and proposed consolidation and reorganization of them. Includes list of needed traffic engineering projects. Includes one section of parking lots, present and proposed, and summarized answers to a questionnaire sent to merchants of the city on the traffic situation.

Study of Traffic in Business District, Staunton, Virginia, by the Virginia Department of Highways, Division of Traffic and Planning. The Department, 1946. 28 pp. plus maps.

Denver Metropolitan Area Origin and Destination Study, by the Colorado State Highway Department, Planning Division in cooperation with the Federal Works Agency—U.S. Public Roads Administration; City and County of Denver Planning Commission, University of Denver and others. Colorado State Highway Department, 1946. variously paged, mimeo.

Annual Report — 1945 by the Chicago Street Traffic Commission. The Commission, 1945. 30 pp.

Contains graphical presentation of accident statistics and traffic counts.

Equitable Street and Highway Financing; revised, by John E. Vance. Providence, Rhode Island, Civic Planning and Traffic Board. January, 1946. 10 pp. mimeo.

Williamsport Traffic To Be Surveyed

Traffic engineers of the National Conservation Bureau began a survey in Williamsport, Pa., the first week in February designed to spot the causes of the increasing traffic congestion and accident rate in that city. The work is under the direction of Henry K. Evans, director of the traffic engineering division of the Bureau. Upon completion of the survey, recommendations for solving Williamsport's traffic problems will be outlined.

The survey is one of a series being conducted by the National Conservation Bureau, accident prevention division of the Association of Casualty and Surety Executives, in cooperation with local police and civic organizations to cut down accidents and improve parking conditions locally and to set a pattern for improvement in other cities. A similar survey has just been completed in Westport, Connecticut. Others were conducted during 1946 in Morristown, N. J., New Rochelle, N. Y., St. Louis, Mo., and Parkersburg, W. Va.

"The Bureau is indebted to the Sun-Gazette Newspapers in Williamsport for sponsorship of the survey," Mr. Evans said. "Through their instigation and support the National Conservation Bureau can step in to help Williamsport ease its traffic problem."

The *Sun and Gazette* instigated the traffic survey as part of their contribution to the state-wide highway safety campaign recently staged by the Pennsylvania Newspaper Publishers Association.

Toll Highway Proposed For Ohio

Construction of a privately-financed 239-mile superhighway across Ohio designed to link up with the Pennsylvania Turnpike, will be called for in a bill to be submitted to the state legislature next month. The J. E. Greiner Co., Baltimore, Md., Pennsylvania Turnpike consulting engineers, said the highway would attract an average of 12,000 vehicles a day. It said a daily maximum of 6,750 vehicles would be adequate to retire in 30 years bonds to the total of $152,380,000, which would be issued to finance the route.

The measure, proposed by Ralph A. Winter, provides for the creation of a 5-member Ohio Turnpike Commission empowered to issue highway bonds containing a statement on their face "that the state of Ohio is not obligated to pay the principal and interest thereon except from tolls."

COURT SANCTIONS CONDEMNATION OF PROPERTY FOR PARKING

The Court of Appeals of Kentucky has rendered a decision of significance concerning the question of the provision of parking facilities as a municipal or public function. In deciding that the provision of public parking lots for automobiles constitutes a legitimate municipal purpose the court took cognizance of the present needs of the motoring public as well as of the greater public welfare of the citizenry in general.

The most important features of this case, the decision of which is a precedent that will be scrutinized by local and state authorities are as follows: The board of council of the city of Georgetown, Ky., adopted an ordinance setting forth the need for public off-street parking facilities and for that purpose authorizing the acquisition, through condemnation if necessary, of two tracts of land near the business district, one owned by a corporation

and one by an individual. Both owners resisted, and the city instituted condemnation proceedings in the Scott County court, which sustained the defendants' demurrer and awarded judgment for them.

City's Intentions Sustained

Upon appeal by the city, the circuit court reversed the ruling of the lower court and the Court of Appeals affirmed the decision of the Circuit court, sustaining the city's intentions.

Part of the wording of the decision is of special interest. It reads: "Subsection 8 of Kentucky Revised Statutes 86 110 authorizes in general terms the city to purchase or condemn real estate which it has declared by ordinance is needed for municipal purposes. Although the power of eminent domain is not inherent in municipalities and may not be exercised by them without statutory authority, it is not necessary that the statute should specifically mention streets, alleys, highways, or other purposes for which the municipality may condemn property. The general power of condemnation for appropriate municipal purposes confers the authority to condemn for every necessary municipal purpose in the opinion of the courts.

"Is then the acquisition and use of land by the city for a parking lot a municipal purpose? It is a matter of common knowledge that the great increase in recent years of motor vehicles has created a situation, even in the smaller cities, which is fraught with danger to persons using the streets and causes inconvenience to the residents of the city. Under the powers to regulate the use of vehicles on their streets cities may, and frequently do, prohibit parking on the streets in congested areas, and the right to furnish parking space is a necessary adjunct to the right to regulate traffic; otherwise it would be impossible to achieve the general objectives of the statutory grant of power to regulate the use of streets by vehicles. One of the main objectives is the protection and safety of the citizens." —*Engineering News Record*

CITY OFFICIAL BELIEVES UNDERGROUND PARKING WOULD PAY FOR ITSELF

The downtown parking problem of Memphis, Tenn., may be solved, it is said, if City Commissioner Boyle's plan goes through to provide parking for at least 3,000 cars underground.

This is what Mr. Boyle proposes:

1. Excavation for underground parking lots of three stories each beneath the present fire department headquarters at Front and Union, Confederate Park, and on the city-owned parking lot. Each area is a block square.

2. Excavation for an underground parking area beneath Front Street from Jefferson to Gayoso, which also would be a lateral artery for connecting the three major underground lots.

3. Auto entrances and exits for the entire system in the sides of the river bluffs on the slopes of Union, Monroe, Court and Jefferson between Front Street and Riverside Drive, by means of ramps. In the one-way traffic system, cars would enter from one side and depart from the opposite.

4. Street entrances and exits for pedestrians, by means of stairs, on the east side of Front Street from Jefferson to Gayoso; also pedestrian tunnels direct to office buildings and department stores facing Front Street so that autoists can walk directly into them.

"It may sound fantastic. but it isn't," said Mr. Boyle. "With the tremendous increase in the number of automobiles in the next few years something will have to be done to solve the downtown parking problem, and placing these

cars underground is the only way to do it. The cost would not be much. The city already owns the properties, and the only major item of expense would be for excavation and concreting. The entire project would be owned and operated by the city and, at a reasonable parking fee, I am sure it would pay for itself in 10 years. Our parking meters, installed a few years ago, paid for themselves in their first nine months of operation." — *Engineering News Record.*

REALIZING FAULTS OF SHUTTLE BUS PARKING SERVICE, CHICAGO WORKS OUT METHOD TO USE 6,000 SPACES

To the west of Chicago's loop, lies the fairly accessible Monroe Street parking lot where up to nearly 5,000 motorists daily pay 25 cents for parking. That municipal lot, plus many smaller privately owned lots and garages, falls far short of meeting the needs of workers and shoppers.

A mile and a half southeast from what has long been described as the world's busiest corner, State and Madison Streets, is Chicago's Soldier Field Stadium. That stadium is served by adjacent free parking areas, 6,000 spaces begging for occupancy—enough room for all the cars that could be curb-parked along both sides of ten miles of streets.

With the conclusion of the war, traffic began to zoom in Chicago as elsewhere. Chicago businessmen and city officials had eyed that distant parking gold mine for a long time, but they knew other cities had failed to work out a really successful scheme to utilize outlying sites. Shuttle bus service, the records showed, usually proved unpopular.

Shuttle Bus Faults

These common faults of shuttle bus service were recognized:

Routes were not carefully determined so as to provide a sufficient volume of two-way traffic.

Intervals between buses were too long and the stops were not carefully planned.

Too often fares were too high.

The parking and shuttle bus service was not well publicized.

Chicago, moreover, had its own experience as a guide. The local bus company last August 15 opened a shuttle service to the Monroe Street lot and to Soldier Field. But the fare of 10 cents, the 10-minute interval and other faults did not win public acceptance of the service to Soldier Field—only about 100 cars daily used the lot.

Merchants Underwrote Transit Service

So a new program was designed to overcome the unfavorable conditions by the State Street Council (merchants and property owners) which made an unusual agreement with the local bus company. In order to assure quality service at the outset, the Council underwrote the operation of the shuttle buses, guaranteeing the company no operating losses for a period of six months beginning September 15.

Customer appeals written into the agreement are: buses at five-minute intervals; service into interior of the lot; five-cent fares; and well-planned routes with fast service and convenient stops. The agreement covers the Monroe Street lot as well as the Soldier Field area. The Council and the bus company are also working out details of another feature, extension of the shuttle service from Soldier Field through the loop to the huge Merchandise Mart just north of the Chicago

river. That extension would add materially to the volume of potential customers.

Success

From the outset, the new shuttle bus service won an increasing patronage. On the old basis parked cars at Soldier Field numbered only about 100 daily. Within two weeks, the new system brought the average number of parked cars up to 800. Then a bus drivers' strike of seven weeks' duration intervened. As expected, patronage dropped when the service was first resumed. But within a week a new high record was set—1,800 parked cars the day after Thanksgiving.

Milton C. Mumford, chairman of the special subcommittee handling the program, reports that the Council "is confident the service can be quickly placed on its own feet as a successful operation."

The enterprise of Chicago businessmen related above extends to broader fields. The State Street Council and the Chicago Association of Commerce are cooperating in a study aimed at determining a long-range action program on parking, which will consider future needs and such vital factors as Chicago's projected express highway program.

DEFINITIONS — PROFESSIONAL ENGINEER

The model law for the registration of Professional Engineers and Land Surveyors lists the following definitions:

"Definition—Professional Engineer.

"The term 'Professional Engineer' within the meaning and intent of this Act shall mean a person who, by reason of his special knowledge of the mathematical and physical sciences and the principles and methods of engineering analysis and design, acquired by professional education and practical experience, is qualified to practice engineering as hereinafter defined, as attested by his legal registration as a Professional Engineer."

"Definition—Practice of Engineering.

"The term 'Practice of Engineering within the meaning and intent of this Act shall mean any professional service or creative work requiring engineering education, training, and experience and the application of special knowledge of the mathematical, physical, and engineering sciences to such professional services or creative work as consultation, investigation, evaluation, planning, design, and supervision of construction for the purpose of assuring compliance with specifications and design, in connection with any public or private utilities, structures, buildings, machines, equipment, processes, works, or projects.

"A person shall be construed to practice or offer to practice engineering, within the meaning and intent of this Act, who practices any branch of the profession of engineering; or who, by verbal claim, sign, advertisement, letterhead, card, or in any other way represents himself to be a professional engineer, or through the use of some other title implies that he is a professional engineer; or who holds himself out as able to perform, or who does perform any engineering service or work or any other professional service designated by the practitioner or recognized by educational authorities as engineering."

The most recent edition of the model law was issued in July, 1946, and has been approved and endorsed by approximately a dozen national engineering societies. The model law is for enactment by a state.

NEW A. A. A. PARKING MANUAL

Central business district valuations have declined almost one third in the past ten years according to figures compiled by the American Automobile Association. This drastic decline was revealed in the new A.A.A. Parking Manual just published to help cities solve their parking problems. The A.A.A. blames parking difficulties for causing a sizable percentage of this drop.

"Business is being forced out of downtown districts to more accessible outlying business areas," the Association said. "Partly due to parking deficiencies, downtown property values have declined and so have tax returns from the central business district. Nor are lost taxes recovered from the new outlying locations. Indeed, often the business moves OUTSIDE the municipal limits.

"City government and property owners have a real 'pocket-book' interest in the economic health of their downtown district for tax losses seriously reduce the ability of the city government to carry on and make improvements unless the loss is made up by tax increases on other property owners.

"The irritation of searching somewhat hopelessly for a parking space each time a driver enters the business district is not measurable in minutes or in dollars and cents. But the repetition of this exasperating experience has probably driven many potential buyers out of business districts.

"This is evidenced by the many shoppers who are willing to drive extra miles to outlying business establishments where ample parking space is available and much traffic congestion avoided."

The A.A.A. said the parking problem has reached a state of major magnitude and seriousness. "It calls for special treatment and vigorous action. Such treatment and action are long overdue in most cities."

Among the suggested relief measures were improvements in public transportation. Such improvements should receive much consideration as an important way of helping downtown traffic conditions.

"Many specialists believe that more persons, particularly those who are employed in the business district should use public transportation for their daily trips. This would reduce the demand for parking facilities to a considerable degree." The A.A.A. pointed out the average cost of using the street cars, trackless trolleys or gas buses was only 20 cents a day while private automobile travel averaged 90 cents, 50 cents for operation and 40 cents for parking charges.

Indianapolis Launches Traffic Plan

Indianapolis has launched a new and inclusive drive to solve its downtown parking and congestion problem, according to a plan unfolded recently by city and state experts. The plan is based upon present traffic conditions and is the fruit of many months of analysis. Major points in the overall program include establishment of two one-way down-town traffic loops; designation of feeder routes for the transit system; rerouting of certain trolley and coach lines; and increase of off-street parking facilities coupled with stricter enforcement of all parking regulations.—*Highway Highlights.*

COLLIER COMMITTEE GETS ENGINEERING REPORT

Although working time totaled a scant year, the comprehensive engineering report completed for the California legislature's Collier Committee is regarded as a history-making project setting a new high mark in the use of highway research and planning facts.

The report, "Engineering Facts and Future Program" was prepared by the special engineering and research staff organized and headed by G. Donald Kennedy, (Member, Institute of Traffic Engineers), vice president of the Automotive Safety Foundation.

The engineering study, conducted separately from other studies on fiscal and tax matters, was financed by a special appropriation of the California legislature to the Joint Fact-Finding Committee on Highways, Streets and Bridges, known as the Collier Committee of which State Senator Randolph Collier is chairman. At the request of the Committee, the Foundation loaned the services of Mr. Kennedy and J. O. Mattson.

The 144-page printed report, attractively and forcefully illustrated with art work and graphs, digs deeply into all major phases of highway needs, usage and development. Emphasis is placed on California's dependence upon the motor vehicle and the road, and detailed studies focus attention on the history and present status of the road systems and the characteristics of road use.

Facts are presented to show how proper classification of highways is necessary to efficiently handle problems of jurisdiction, financing, administration, construction and maintenance. Findings show that 2,467 miles now on the State Highway System should be transferred to county and city jurisdiction. The remaining state system is recommended for separation into two parts, a 2,900-mile state expressway system to be built to advanced design standards and an 8,500-mile state trunkline system. City and County road systems are likewise divided into two classifications, routes of general traffic service and those routes furnishing access to land and homes.

In addition to a master plan of classification and administration of road systems, the report recommends farsighted standards of road improvements and of road operation. The report concludes with a recommended ten-year program of improvements, condensed as follows in the Summary of Findings:

"Highway Improvements as currently contemplated should be carried out through the fiscal year 1949, then an accelerated Ten Year Program should be started in the fiscal year 1950 after enactment of required legislation and necessary administrative preparation. The Ten Year Program, as outlined in this report, begins with annual expenditures from all sources for construction, maintenance and administration amounting to $111 million for the State Highway System, $48.5 million for the County Road System, and $50 million for the City Street System. Recommended expenditures increase progressively each year to keep pace with growth of traffic and revenue."

In a statement addressed to Chairman Collier, Thomas H. MacDonald, (Hon. Member, Institute of Traffic Engineers), Commissioner of Public Roads, said: "It is the first large scale project of its kind, and I hope that out of it your Committee and the Legislature will be able once more to set a pattern in California which other states will find both useful and inspiring." Commissioner MacDonald also said, "The urgent task in all states is

to put these (planning survey) facts to work; to make them the basis for sound and orderly highway development in accordance with needs."

LEGAL DECISIONS RELATING TO HIGHWAYS

From PUBLIC WORKS for November, 1946

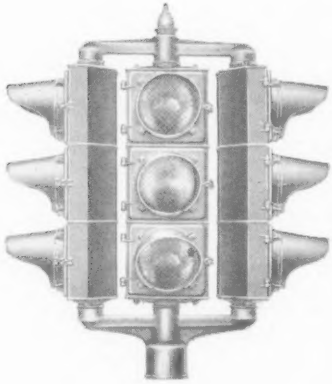
Taxation Exemption of Engineer's Fee. An engineer contracted with a Bridge and Highway District to furnish all the necessary engineering talent and material required for the construction of a bridge, including the services of such of his subordinates as might be necessary to plan, supervise and complete the construction of all engineering features at a percentage of the estimated cost of the bridge, the contractor being bound by the contract provision against its assignment to see the project through to completion. The Ninth Circuit Court of Appeals (Strauss v. Commissioner of Internal **Revenue,** 97 F 2d 549) held that he was an "independent contractor," and compensation paid him under the contract was not exempt from income tax. Both parties presented the case on the assumption that if the compensation was paid him as an officer of the district it was exempt from Federal Tax.

Issuing Bonds for Road Purposes. Where more than 27 years have elapsed since the approval by the voters of the issuance by a county of bonds for road purposes, the Kentucky Court of Appeal (Sparks v. Sparks County, 192 S. W. 2d 724) said that the strongest point against the validity of a proposed bond issue and the continuation of a 20 per cent tax levy for payment of proposed road bonds, was, in addition to the long lapse of time and the radical change in the plans for building and maintaining highways, the fact that the retirement of the bonds by the continued levy of the maximum tax would have to be met by a new generation who had no voice in the election held 27 years ago. Between 1920 and 1940 the population had increased almost 50 per cent. "It would be unfair to a great number of the present population," the court said, "to impose upon the citizens a debt even of $50,000, with a 25 year tax of the constitutional limit, without giving a fair opportunity to express their present views."

"Extra Work" Provision Construed. The New York Court of Appeals (DeMartins v. Elude Realty Corporation, 293 N. Y. 778, 58 N.E. 2d 519) hold that, where the provisions of a contract fixing the price to be paid for items of "extra work" clearly implied an obligation to do such extra work at a stipulated price as required in connection with the performance of work included in the "scope of the work" provision of the contract, the plaintiff's failure to do requested extra work would serve as a partial defense in an action to foreclose a mechanic's lien and for damages for breach of contract. The judgment of the Appellate Division (267 App. Div., 774, 45 N. Y. S 2d 355) was reversed which held that the action would not be defeated because of the plaintiff's failure to install curbs and lay sidewalks, where the contract contained no language requiring the plaintiff to do so, but merely set forth an agreed price for such services under the caption "Extra Work"—a term meaning work independent of the contract and not required in its performance, as shown by the fact that these items were not included in the "Scope of Work" provision in the contract.

Announcement

This announcement is of importance to every man who buys, installs and maintains traffic signals.



« Marbelite has acquired the Traffic Signal Division of the Horni Signal Manufacturing Corporation. This addition to our regular line of signals, plus the Signal Service Signal Division, which we acquired some time ago, places us in a leading position to furnish traffic signal equipment to meet all requirements. »

THE MARBELITE CO., Inc.
27 WARREN ST., NEW YORK 7, N.Y.